CLASS SPECIFICATION

TITLE	GRADE	EEO-4	CODE
COMPUTER SYSTEMS PROGRAMMER IV	**41**	**A**	**7.914**
COMPUTER SYSTEMS PROGRAMMER III	**39**	**B**	**7.915**
COMPUTER SYSTEMS PROGRAMMER II	**37**	**B**	**7.923**
COMPUTER SYSTEMS PROGRAMMER I	**34**	**B**	**7.932**

SERIES CONCEPTS

Computer Systems Programmers provide technical support in the analysis, design, development, maintenance and modification of computer and communications hardware, operating systems and auxiliary software packages required to support various computer systems, and perform long range planning for both computer hardware and software products.

Incumbents solve computer problems to ensure continuous uninterrupted operation of the computer system they are working with, maintain a wide variety of installed software, plan for long range and short range hardware and software requirements, implement and improve hardware and software, and provide training and technical advice to programmers/analysts.

Computer Systems Programmers identify and resolve any problems associated with computer system hardware and software which impact the timely accomplishment of the data processing and communications activities. This involves researching and discussing with other systems programmers, applications programmers, computer operators, software vendor technical staff, hardware vendor technical staff, etc. in order to specifically identify the problem, formulate a plan for correction of the problem, and implement the solution. These activities must often be performed under substantial pressure and with very tight time constraints.

Computer Systems Programmers maintain vendor supplied software by applying routine maintenance received from the vendors to the individual software systems. Techniques for accomplishing this must be developed and/or verified by local staff, and full and adequate testing mechanisms must be employed.

Incumbents develop and modify operating systems software as required. Modified software must then be integrated into a full operating environment, tested further, and subsequently installed in a production environment. All support documentation, data and program files, and associated material must be maintained both in current and in back-up form.

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SERIES CONCEPT (cont.)

Computer Systems Programmers provide technical assistance to application programmers/analysts for the purpose of improving file organization, solving job control language problems, analyzing program failures and suggesting utility program uses. Technical assistance is accomplished by analyzing computer output and programs, coding, researching programming manuals, and soliciting vendors and other professional staff for technical information.

Computer Systems Programmers recommend hardware and/or software configurations and options which best meet the agency's needs. The assignment requires incumbent to analyze the agency's data processing needs, discuss with the vendor the needs of the agency and match needs to available products, present alternative uses to management, review technical material and manuals pertaining to the new equipment and plan installation procedures which minimize the disruption of data processing services.

Incumbents research available literature on data processing hardware and software in order to keep apprised of the latest developments in the field. Research is accomplished through review of trade publications, training classes, vendor presentations, visiting other computer installations and discussing new products with other professionals in the field.

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CLASS CONCEPTS

COMMUTER SYSTEMS PROGRAMMER IV

Under administrative direction supervises the work of lower level Computer Systems programmers and performs the most advanced technical and professional work associated with the evaluation, enhancement, maintenance, and installation of major information systems.

Serves as a principal technical resource person for department's strategic information systems planning. Serves as liaison to vendor technical personnel; evaluates and makes technical recommendations regarding equipment configurations and associated software.

Performs system design work in situations of unusual difficulty or in the presence of critical or conflicting requirements. Designs monitoring techniques and/or equipment to assess system operation and performance.

Provides system tailoring and enhancement to improve performance. Provides technical support for lower level personnel. Provides consultation and/or training for information systems personnel and system users.

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CLASS CONCEPTS (cont.)

Coordinates with other agencies and departments concerning technical issues and performs related work as required.

Distinguishing Characteristics

Complexity (Nature of Work).

The work involves the highest technical level evaluation, analysis, enhancement, and maintenance of the hardware and/or software components that serve as the underlying tools for the development of higher level problem solving applications. In addition, work involves strategic planning for future information systems activity. Systems dealt with typically multiple complex computer systems and have departmental as well as interstate-wide scope.

Supervision Received:

Guidelines in the form of technical manuals and vendor support are available, but considerable analysis and adaptation is required to apply them. Incumbents receive no technical supervision from within the organization; instead, they are the highest level technical expert on staff with respect to their assigned components or systems. Incumbents choose methods, program design, and project assignments for lower level staff.

Management and Supervision of Others:

Incumbents serve as a principal technical resource on information systems within and beyond their organization. Incumbents in this class also serve as supervisors and project leaders, assigning, coordinating, and reviewing the work of others. This class should be used for positions that meet the standards described on the Computer Systems Programmer III specification and, in addition, exercise line supervision over other data processing professionals.

Personal Contacts:

Regular contacts are with information systems policy makers, administrators, technical colleagues in other departments/agencies, vendors, other Computer Systems Programmers, and users The purpose of contacts is to identify and resolve system problems of long range concern, including developing recommendations for major changes. Incumbents usually have significant consultation and training responsibilities.

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CLASS CONCEPTS (cont.)

Scope and Effect:

The work directly affects the current and future operation of a department's major information system or systems, together with large numbers of users. Errors could disable the entire information system activities until corrected, causing severe negative impact on the entire organization or on several departments.

COMPUTER SYSTEMS PROGRAMMER III

Under general direction, performs advanced professional work associated with the evaluation, enhancement, maintenance, and installation of the application-independent hardware and/or software components of one or more information systems.

This is the advanced journey level class within the series.

Evaluates and makes technical recommendations regarding equipment configurations and associated software. Designs and implements monitoring techniques and/or equipment to assess system operation and performance.

Provides system tailoring and enhancement to improve performance. Provides technical support for lower level personnel. Provides consultation and/or training for information systems personnel and system users; coordinates with other agencies and departments concerning technical issues.

Maintains hardware and/or software by diagnosing problems and applying modifications.
Installs new system components and tests to ensure proper operation.
May serve as project leader as assigned and performs related work as assigned.

Distinguishing Characteristics:

Complexity (Nature of Work):

The work involves advanced evaluation, analysis, enhancement, and maintenance of the hardware and/or software components that serve as the underlying tools for the development of higher level problem solving applications. Systems dealt with typically are large, complex and involve multi-user and multi-tasking capabilities. Problems encountered are diverse and occasionally unprecedented so that unique solutions must be researched and implemented.

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CLASS CONCEPTS (cont.)

Supervision Received:

Incumbents generally receive minimal or no technical supervision from within the organization. They are responsible for the technical analysis of the repercussions of any planned intervention. Guidelines and standards are available in manuals and technical bulletins, but considerable judgment is needed to determine how they apply to specific problems.

Management and Supervision of Others:

Projects are sometimes lengthy and complex enough to warrant delegation of segments to lower level Computer Systems Programmers. Incumbents in this class may serve as project leaders (lead workers) assigning, coordinating, and reviewing the work of others. Supervision of others is not a requirement for allocation to this class.

Personal Contacts:

Regular contacts are with administrators, vendors, colleagues in other agencies, other System Programmers and users to exchange information, identify problems, and provide advice. Incumbents typically provide consultation and training to users with respect to system operations.

Scope and Effect:

The work directly affects a major system with multi-tasking capabilities and diverse users throughout an agency, or principal components of a statewide system. Incumbents are typically responsible for successful operation of the system they are dealing with. Errors could disable the entire system until corrected, causing severe impact on the entire organization or on several departments.

<u>COMPUTER SYSTEMS PROGRAMMER II</u>

Under general supervision, performs professional information systems work in the evaluation, enhancement, maintenance, and installation of the application-independent hardware and/or software components of one or more information systems.

This is the journey level class within the series.

Incumbent makes technical recommendations regarding equipment configurations and associated software. Implements monitoring techniques and/or equipment to assess system operation and performance.

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CLASS CONCEPTS (cont.)

Provides system tailoring and enhancement to improve performance. May provide consultation and/or training for system users.

Maintains hardware and/or software by diagnosing problems and applying modifications; installs new system components and tests to ensure proper operation.

Performs general system upkeep such as installing vendor supplied changes, backing up files, logging changes, updating documentation, etc.

Distinguishing Characteristics

Complexity (Nature of Work):

The work involves analysis, evaluation, installation, modification, and maintenance of hardware and/or software for systems of moderate complexity, or for limited components of larger systems. Problems encountered tend to be of a recurring kind and solutions are derived through application of standard professional practices and procedures.

Supervision Received:

Extensive guidelines are available in the form of technical manuals and established conventions but judgement is required to apply them to specific tasks. Incumbents are expected to independently resolve most problems of detail. Assistance with situations involving unusual or difficult circumstances is provided by a supervisor or by the vendor.

Management and Supervision of Others:

Supervision of others is not a requirement for allocation to this class, provided the position meets the standards described in all other factors.

Personal Contacts:

Regular contacts are with other information systems specialists and with users to exchange information, diagnose and solve problems, and provide recommendations about system improvements. Incumbents may have training responsibilities.

Scope and Effect:

The work generally affects all users of the information system or subsystem. Incumbents are typically responsible for successful operation of the subsystem they are dealing with. Errors could disable part or all of the system until corrected, causing negative impact on a number of projects.

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CLASS CONCEPTS (cont.)

COMPUTER SYSTEMS PROGRAMMER I

This is a continuing (advanced) training class where incumbents work under immediate supervision and perform professional information systems work in the installation, testing, and maintenance of the application-independent hardware and/or software components of one or more information systems.

Incumbent maintains hardware and/or software using well established procedures and practices. Installs new system components and tests to ensure proper operation.

Performs general system upkeep such as installing vendor supplied changes, backing up files, logging changes, updating documentation, etc.

Distinguishing Characteristics

Complexity (Nature of Work):

The work involves skilled application of prescribed techniques and methods to install, trouble-shoot, maintain, and enhance the hardware and/or software components that serve as the underlying tools for the development of higher level problem solving applications. Incumbents typically deal with less technically complex systems or with limited components of a larger system.

Supervision Received:

Standards for taking action are available in technical manuals and bulletins. Some judgment is needed to select the appropriate standard and apply it to the specific task. A supervisor who is familiar with all phases of the work, and/or other technical experts on staff provide technical assistance with unconventional or difficult problems. Planned interventions that have little precedent are typically reviewed by higher level personnel before they are implemented.

Supervision and Management of Others:

Positions in this class are not required to supervise others.

Personal Contacts:

Regular contacts are with other Computer Systems Programmers and with vendors to exchange information of a technical nature, and with users to diagnose and solve problems and provide advice or assistance.

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CLASS CONCEPTS (cont.)

Scope and Effect:

Actions and decisions performed independently affect the efficiency with which installation and maintenance tasks are performed, and contribute to user satisfaction. Errors could result in unnecessary downtime, idle user personnel, production backlog, and unnecessary expenditures.

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MINIMUM QUALIFICATIONS

COMPUTER SYSTEMS PROGRAMMER IV:

EDUCATION AND EXPERIENCE:

I

Bachelor's degree from an accredited college or university with major course work in computer science, information systems, mathematics or related field of study and five years of professional data processing experience including two years of supervisory or project management experience; OR

II

Graduation from high school or equivalent combination and seven years of professional data processing work experience including two years of supervisory or project management experience; OR

III

Two years as a Computer Systems Programmer III in Nevada State service; OR

IV

An equivalent combination of education and experience where the applicant has demonstrated possession of the entry level knowledge, skills, and abilities.

EQUIVALENCY STATEMENT:

Education above the high school level may be substituted for the required education on the basis of 30 semester credits equals six months of the required experience up to a maximum of one year of the required experience.

SPECIAL NOTE: In order to meet the needs of each agency, the position may require specialized backgrounds or skills in order for the incumbent to perform the essential functions required of the position. Any specialized background required will be identified prior to the recruitment process within the parameters of the class specification.

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MINIMUM QUALIFICATIONS (cont.)

FULL PERFORMANCE KNOWLEDGE, SKILLS AND ABILITIES: (These may be acquired on the job and/or are needed to perform the work assigned.)

Detailed knowledge of various systems software products and their interrelationships. Working knowledge of supervisory principles and techniques. Working knowledge of Nevada Revised Statues and departmental rules, regulations, policies and procedures. Working knowledge of Nevada Administrative practices for budgeting and purchasing information system software and hardware. Detailed knowledge of capacity planning techniques. Detailed knowledge of performance monitoring principles and related software products. Detailed knowledge of telecommunication technology and related systems software. Detailed knowledge of vendor procedures for applying maintenance and temporary fixes.

Ability to develop and prioritized task lists and resolve problems. Ability to assign and coordinate the work of subordinate personnel.

Skill in analyzing and diagnosing operational hardware and software problems occurring in a computer environment. Skill in developing technical specifications for bid requests and in analyzing vendor responses.

ENTRY LEVEL KNOWLEDGE, SKILLS AND ABILITIES: (Applicants will be screened for possession of these through written, oral, performance or other evaluation procedures.)

Detailed knowledge of the principles, practices, and procedures required to design, analyze and maintain information system hardware and/or software. Detailed knowledge of systems programming languages and techniques. Detailed knowledge of the principles, tools and techniques as applied to writing and modifying programs. Detailed knowledge of the principles of designing test procedures. Detailed knowledge of the practices used to charge for the use of computing resources.

Ability to anticipate and plan for future information system technologies. Ability to tailor information system hardware and/or software to meet local requirements. Ability to recommend and implement system changes. Ability to provide high-level technical consultation and training. Ability to maintain effective working relationships with others. Ability to communicate effectively orally and in writing. Ability to work cooperatively/interact with colleagues and users when developing or modifying programs. Ability to make decisions and use independent judgement.

Skill in problem solving, analysis and synthesis. Skill in interviewing users to identify needs. Skill in improving the performance of complex computer systems. Skill in developing specialized programs for other programmers.

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MINIMUM QUALIFICATIONS (cont.)

COMPUTER SYSTEMS PROGRAMMER III

EDUCATION AND EXPERIENCE:

I

Bachelor's degree from an accredited college or university with major course work in computer science, information systems, mathematics or related field of study and three years of professional data processing related work experience; OR

II

Graduation from high school or equivalent combination and five years of professional data processing work experience; OR

III

Two years of experience working as a Computer Systems Programmer II in Nevada State service; OR

IV

An equivalent combination of education and experience where the applicant has demonstrated possession of the entry level knowledge, skills, and abilities.

EQUIVALENCY STATEMENT:

Education above the high school level may be substituted for the required education on the basis of 30 semester credits equals six months of the required experience up to a maximum of one year of the required experience.

SPECIAL NOTE: In order to meet the needs of each agency, the position may require specialized backgrounds or skills in order for the incumbent to perform the essential functions required of the positron. Any specialized background required will be identified prior to the recruitment process within the parameters of the class specification.

FULL PERFORMANCE KNOWLEDGE, SKILLS AND ABILITIES: (These may be acquired on the job and/or are needed to perform the work assigned.)

Detailed knowledge of the principles, tools and techniques as applied to writing and modifying programs. Detailed knowledge of the principles of designing test procedures. Detailed knowledge of the principles, practices and procedures required to design, analyze, and maintain information system hardware and/or software. Detailed knowledge of systems programming languages and techniques.

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MINIMUM QUALIFICATIONS (cont.)

FULL PERFORMANCE KNOWLEDGE, SKILLS AND ABILITIES: (cont.)

Ability to evaluate and tailor information system hardware and/or software to meet local requirements. Ability to recommend and implement system changes. Ability to analyze and recommend the billing algorithms used to charge for use of computing resources. Ability to provide high-level technical consultation and training. Ability to maintain effective working relationships with others. Ability to communicate effectively orally and in writing. Ability to work cooperatively/interact with colleagues and users when developing or modifying programs. Ability to implement a state-wide, multi-departmental operating systems. Ability to cooperatively interact with colleagues and users when developing or modifying programs. Ability to make decisions and use independent judgement.

Skill in problem solving, analysis and synthesis. Skill in interviewing users to identify needs. Skill in improving the performance of complex computer systems. Skill in developing specialized programs for other programmers.

ENTRY LEVEL KNOWLEDGE, SKILLS AND ABILITIES: (Applicants will be screened for possession of these through written, oral, performance or other evaluation procedures.)

Working knowledge of the principles, practices, and procedures required to analyze and maintain information system hardware and/or software. Working knowledge of systems programming languages and techniques. Working knowledge of the principles, tools and techniques as applied to writing and modifying programs. Working knowledge of the principles of designing test procedures.

Ability to evaluate and tailor information system hardware and/or software to meet local requirements. Ability to implement auxiliary software and subsystems. Ability to recommend and implement system changes. Ability to maintain effective working relationships with others. Ability to communicate effectively orally and in writing. Ability to provide mid-level technical consultation and training.

Skill in solving information system problems. Skill in managing large volumes of data on various storage media. Skill in implementing changes to a variety of networking systems.

Some positions may require detailed knowledge of a specific departmental information systems.

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MINIMUM QUALIFICATIONS (cont.)

COMPUTER SYSTEMS PROGRAMMER II:

EDUCATION AND EXPERIENCE:

I

Graduation from high school or equivalent education and four years of professional work experience as computer systems programmer which involved the writing and modifying of systems software, designing test data for testing new and existing programs, developing documentation packages, providing assistance to users in technical support and use of the systems software and developing schedules for implementing new systems software; OR

II

Bachelor's degree from an accredited college or university with major course work in computer science, information systems, mathematics, or related field of study and two years of related professional work experience; OR

III

Two years of experience working as a Computer Systems Programmer I in Nevada State service; OR

IV

An equivalent combination of education and experience where the applicant has demonstrated possession of the entry level knowledge, skills, and abilities.

EQUIVALENCY STATEMENT:

Education above the high school level may be substituted for the required education on the basis of 30 semester credits equals six months of the required experience up to a maximum of one year of the required experience.

SPECIAL NOTE: In order to meet the needs of each agency, the position may require specialized backgrounds or skills in order for the incumbent to perform the essential functions required of the position. Any specialized background required will be identified prior to the recruitment process within the parameters of the class specification.

FULL PERFORMANCE KNOWLEDGE, SKILLS AND ABILITIES: (These may be acquired on the job and/or are needed to perform the work assigned.)

Working knowledge of the principles, practices, and procedures required to analyze and maintain information system hardware and/or software. Working knowledge of systems programming languages and techniques. General knowledge of the principles, tools and techniques as applied to writing and modifying programs. General knowledge of the principles of designing test procedures.

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MINIMUM QUALIFICATIONS (cont.)

FULL PERFORMANCE KNOWLEDGE, SKILLS AND ABILITIES: (cont.)

Ability to evaluate and tailor information system hardware and/or software to meet local requirements. Ability to implement auxiliary software and subsystems. Ability to recommend and implement system changes. Ability to provide mid-level technical consultation and training. Ability to maintain effective working relationships with others. Ability to communicate effectively orally and in writing.

Skill in solving information system problems. Skill in managing large volumes of data on various storage media. Skill in implementing changes to a variety of networking systems.

ENTRY LEVEL KNOWLEDGE, SKILLS AND ABILITIES: (Applicants will be screened for possession of these through written, oral, performance or other evaluation procedures.)

General knowledge of the principles, practices, and procedures required to design, analyze and maintain information system hardware and/or software. General knowledge of systems programming languages and techniques. General knowledge of the principles, tools and techniques as applied to writing and modifying programs. General knowledge of the principles of designing test procedures.

Ability to recommend and implement systems change. Ability to communicate effectively orally and in writing. Ability to maintain effective working relationships with others.

Skill in solving information systems problems.

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COMPUTER SYSTEMS PROGRAMMER I

EDUCATION AND EXPERIENCE:

I

Graduation from high school or the equivalent education and three years of professional work experience as a computer systems programmer which involved writing and modifying computer programs, designing test data for testing new and existing programs, developing documentation packages, providing assistance to users in technical support and developing the workflow charts needed to design a computer system; OR

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MINIMUM QUALIFICATIONS (cont.)

EDUCATION AND EXPERIENCE: (cont.)

II

Graduation from an accredited college or university and one year of work experience as described in option I; OR

III

One year of experience working as a Computer Information Systems Trainee in Nevada State Service; OR

IV

An equivalent education and experience where the applicant has demonstrated possession of the entry level knowledge, skills, and abilities.

EQUIVALENCY STATEMENT:

Education above the high school level may be substituted for experience on the basis of 30 semester credits equals six months of the required experience up to a maximum of one year of the required experience.

SPECIAL NOTE: In order to meet the needs of each agency, the position may require specialized backgrounds or skill in order for the incumbent to perform the essential functions required of the position. Any specialized background required will be identified prior to the recruitment process within the parameters of the class specification.

FULL PERFORMANCE KNOWLEDGE, SKILLS AND ABILITIES: (These may be acquired on the job and/or are needed to perform the work assigned.)

General knowledge of the principles and procedures required to install and maintain information system hardware and/or software. Some knowledge of systems programming languages and techniques.

Ability to carry out well defined installation, enhancement, and maintenance activities. Ability to implement system changes. Ability to make decisions and use independent judgement. Ability to maintain effective working relationships with others. Ability to communicate effectively orally and in writing.

Skills: Some postilions may require skill in the use of LAN management softw are, audio generating equipment, data concentrators, front-end processors, data scopes and recorders, tone modulation test sets, and VF monitoring equipment.

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MINIMUM QUALIFICATIONS (cont.)

ENTRY LEVEL KNOWLEDGE, SKILLS AND ABILITIES: (Applicants will be screened for possession of these through written, oral, performance or other evaluation procedures.)

General knowledge of the principles, practices, and procedures required to design, analyze and maintain information system hardware and/or software. General knowledge of programming languages and techniques. General knowledge of the principles of designing test procedures.

Ability to make decisions and use independent judgement. Ability to work cooperatively interact with colleagues. Ability to maintain effective working relationships with others. Ability to communicate effectively orally and in writing.

Skill in problem solving, analysis and synthesis.

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This class specification is used for classification, recruitment and examination purposes. It is not to be considered a substitute for work performance standards for positions assigned to this class.

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ESTABLISHED:	7/1/95P 9/16/94PC	5/1/68	5/1/68	4/1/86 9/11/81PAC
REVISED:		3/22/71	11/3/70	7/1/87-12P 7/18/86PC
REVISED:		4/1/81R 9/11/81PAC	4/1/81R 9/11/81PAC	7/1/95P 9/16/94PC
REVISED:		7/1/87-12P 7/18/86PC	7/1/87-12P 7/18/86PC	
REVISED:		7/1/95P 9/16/94PC	7/1/95P 9/16/94PC	
REVISED:	7/1/97LG	7/1/97LG	7/1/97LG	7/1/97LG